

During a Winter Storm or Extreme Cold : When You're Inside

Getting inside during a winter storm or times of extreme cold is only the beginning of a safety plan. Once inside the home or facility, one needs to take steps to ensure the continued comfort of the occupants and the working order of the building's structures.

Water Pipes

The section on Winter Storm Preparedness (Section 17.4) discussed how to protect water pipes before cold weather. Here are some suggestions for ensuring an adequate water supply and preventing burst pipes during times of extreme cold:



- Let hot and cold water trickle at night from a faucet on an outside wall.
- Open cabinet doors to allow more heat to get to uninsulated pipes under a sink or appliance near an outer wall.
- Make sure heat is left on and set no lower than 55°F.
- If you plan to be away: (1) Have someone check your house daily to make sure the heat is still on to prevent freezing, or (2) drain and shut off the water system (except for indoor sprinkler systems).

If Pipes Freeze

- Make sure you and your family know how to shut off the water in case pipes burst. Stopping the flow of water can minimize the damage to your home. Call a plumber and contact your insurance agent.
- Never try to thaw a pipe with an open flame or torch.
- Always be careful of the potential for electric shock in and around standing water.

This document is IFAS publication DH 1707.

Adapted by UF/IFAS from:
Winter Storm Preparedness Series, Illinois Emergency Management Agency;
Chimney Fires and Carbon Monoxide, Chimney Safety Institute of America; and
EH-91-4 Cold Weather Protection, U.S. Department of Energy's Environment, Safety & Health Bulletin

Home Heating

As temperatures fall, usage of home heating systems increases. Learning about the proper maintenance and usage of your heating system—whether gas, oil, or fireplace—will lessen the chance of potential dangers.

Gas and Oil Heating Systems

When gas and oil burn in vented heating systems, the dangerous fumes that are the byproducts of combustion, including carbon monoxide, are released into the chimney through a connector pipe. Over 200 people across the nation are known to die each year from carbon monoxide poisoning caused by problems in the venting—out of their homes—of toxic gases produced by their heating systems. This is according to statistics compiled by the U.S. Consumer Product Safety Commission. In addition, around 10,000 cases of carbon monoxide-related injuries are diagnosed each year.

“Carbon monoxide detectors are now readily available, and no home should be without at least two.”

Carbon monoxide is a very dangerous, colorless, odorless gas. The symptoms of low-level carbon monoxide poisoning are so easily mistaken for those of the common cold, flu, or exhaustion that proper diagnosis can be delayed. Because of this, be sure to see your physician about persistent, flu-like symptoms, chronic fatigue, or generalized depression.

If you ever suspect a carbon monoxide problem, immediately open doors or windows to ventilate the house and get everyone outside for fresh air. Most utility companies will respond to emergency calls and check your house and heating system. Do NOT reinhabit the house until you are certain there is no longer a problem. If necessary, seek medical attention; treatment is very important. Have the heating system and the chimney checked and serviced by reputable professionals as soon as possible.

Carbon monoxide detectors are now readily available, and no home should be without at least two—one near the furnace and one near the sleeping area of the home. Detectors are NOT a substitute for routine maintenance, but can be a lifesaver should problems occur.

When using kerosene heaters, maintain ventilation to avoid buildup of toxic fumes. Refuel kerosene heaters outside the home and keep them at least three feet away from flammable objects.

It is suggested that all furnaces be serviced yearly by a qualified technician and chimneys checked yearly by a CSIA Certified Chimney Sweep.

Fireplaces

During times of extreme cold, many people rely on fireplaces to heat the home. To make sure your fireplace is functioning properly, ask these eight review questions:

“If your wood is not dry and well-seasoned, it makes more smoke than heat.”

- ① Is your damper fully open? Many dampers cease to fully open because of water damage or soot buildup behind them on the smoke shelf. A good professional cleaning can usually solve this problem.
- ② Is your firewood green or wet from rain or snow? If your wood is not dry and well-seasoned, it makes more smoke than heat and there simply may not be enough heat for the chimney to work properly.
- ③ Is your chimney dirty? The gradual accumulation of soot can seriously affect the way your chimney performs. Birds and small animals also think your chimney looks like a hollow tree in which to set up housekeeping. The solution is a good cleaning and a chimney cap.
- ④ Is your chimney tall enough? To function properly, the chimney must be at least 10 or 12 feet in overall height. Where it projects above the roof, the chimney should be at least 3 feet tall, and at least 2 feet higher than anything within 10 feet of it.
- ⑤ Is your flue large enough for the fireplace opening? The basic rule of thumb here is that the area of the fireplace opening can be no more than 10 times the area of the flue (12 times for round flues).
- ⑥ Is your chimney on the outside of the house? If you have a large masonry chimney on the outside of the house and it's cold outside, the air inside of the chimney will also be very cold, and it will want to fall down the chimney instead of rising. Light some rolled up newspaper and hold it up near the damper to get that cold plug moving upwards.
- ⑦ Is your home too tight? Most houses have been carefully insulated and weather-stripped to keep out cold drafts, but an

undesirable side effect is that there is often nowhere for all that air leaving the chimney to get back in. A temporary solution is to open a window to let in a little make-up air, preferably on the windward side of the house.

⑧ Is your home too loose? A house that leaks too much air to the outside can actually set up its own draft or chimney effect strong enough to overpower your fireplace chimney.

Fireplaces and wood stoves are designed to safely contain wood-fueled fires, while providing heat for a home. The chimneys that serve them have the job of expelling the byproducts of combustion—the substances given off when wood burns. The residue that sticks to the inner walls of the chimney, called creosote, is highly combustible. If it builds up in sufficient quantities and catches fire inside the chimney flue, the result will be a chimney fire.

Chimney fires can burn explosively and dramatically; homeowners report being startled by a low, rumbling sound that reminds them of a freight train. Slow-burning chimney fires aren't as dramatic or visible, but can cause as much damage to the chimney structure and nearby combustible parts of the house as their more spectacular cousins. With proper chimney system care, chimney fires are entirely preventable.

Here are some ways to keep the fire you want from starting the one you don't:

“Never burn cardboard boxes, wrapping paper, trash, or Christmas trees.”

- Use seasoned woods only (dryness is more important than hard wood versus soft wood considerations).
- Build smaller, hotter fires that burn more completely and produce less smoke.
- Never burn cardboard boxes, wrapping paper, trash, or Christmas trees; these can spark a chimney fire.
- Install stovepipe thermometers to help monitor flue temperatures where wood stoves are in use, so you can adjust burning practices as needed.
- Have the chimney inspected and cleaned at least annually by a CSIA (Chimney Safety Institute of America) Certified Chimney Sweep.



Signs That You've Had a Chimney Fire

Since chimney fires can occur without anyone being aware of them, and since damage from such fires can endanger a home and its occupants, it is important to know the signs one has occurred.

Here are the signs a professional chimney sweep looks for:

- “Puffy” creosote, with rainbow colored streaks, that has expanded beyond creosote’s normal form
- Warped metal of the damper, metal smoke chamber, connector pipe or factory-built metal chimney
- Cracked or collapsed flue tiles, or tiles with large chunks missing; discolored and distorted rain cap
- Creosote flakes and pieces found on the roof or ground
- Roofing material damaged from hot creosote
- Cracks in exterior masonry
- Evidence of smoke escaping through mortar joints of masonry or tile liners

If you think a chimney fire has occurred, call a CSIA Certified Chimney Sweep for a professional evaluation.

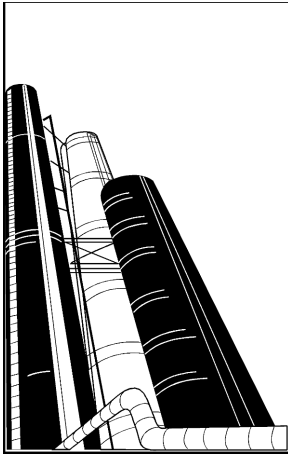


What to Do if You Have a Chimney Fire

If you realize a chimney fire is occurring, get everyone out of the house, including yourself, and then call the fire department. If you can do so without risk to yourself, these additional steps may help you save your home. Remember, however, that homes are replaceable but lives are not.

- ① Put a chimney fire extinguisher into the fireplace or wood stove.
- ② Close the glass doors on the fireplace.
- ③ Close the air inlets on the wood stove.
- ④ Use a garden hose to spray down the roof (not the chimney) so the fire won’t spread to the rest of the structure.
- ⑤ Monitor the exterior chimney temperature throughout the house for at least 2 or 3 hours after the fire is out.

Once it’s over, call a chimney sweep to inspect for damage. Chimney fire damage and repair is normally covered by homeowner insurance policies.



Facility Safety

Cold weather damage most often occurs in exposed, out-of-the-way areas of the facility during weekends or other shutdown periods. It is essential to:

- Establish a schedule for preparing the facility prior to the cold weather season.
- Establish a weather watch with written procedures for alerting management and maintenance personnel. Procedures should be as “automatic” as possible, and should authorize certain actions at specific temperatures (actual or forecasted).
- Arrange for watch service and maintenance personnel to be available during expected cold snaps.
- Develop procedures for repairing or replacing damaged equipment and safely restoring it to service.

Cold Weather Program for Fire Protection Systems

Burst pipes, frozen water lines, and cracked sprinkler heads in fire protection systems are the most frequently reported problems during cold weather.



FIRE ALARM

Recommendations:

- Maintain extra heat during periods of extreme cold, especially during idle periods, to keep the sprinkler piping from freezing. Check the heating system to ensure that it is delivering sufficient heat to all areas, particularly at night.
- Search for isolated drafts or air leaks, particularly in infrequently visited areas and in spaces where sprinkler pipes are installed. Look specifically for places where cold air could enter and eliminate even small openings. Keep all doors, especially large shipping doors, tightly closed.
- Increase surveillance of building pipelines, flowlines, and safety-related equipment during periods of extreme cold. Provide sufficient watch service to ensure that all plant areas can be visited each hour.
- Check room temperatures, and use temporary heaters in those areas where temperatures drop below 40°F.

- After a prolonged period of abnormally cold weather, make drain tests of sprinkler risers wherever possible to determine if underground mains are frozen. Open the drain wide, let it run for 30 seconds or more, then shut it off. If the pressure fails to return to normal promptly, clear the mains of ice as soon as possible.

Cold Weather Programs Related to Hazardous Materials

When cold weather causes pipes and hoses to burst, valves to break, or containers to crack, potentially hazardous material may be released. During winter months, cycles of freezing and thawing may also weaken valves and cause them to rupture.

Recommendations:

- Ensure that all containers used for hazardous or toxic materials are properly stored, and inspect them for deterioration prior to handling. If containers become brittle (due to the combination of chemical attack, freezing temperatures, and ultraviolet light), they may break when moved.
- Liquids should not be permitted to remain in unheated process lines during periods when production has been stopped. All lines should be drained and purged to prevent future line breakage due to freezing temperatures.
- Ensure that piping and valves (particularly check valves and dump valves) in systems that carry hazardous or toxic substances are properly insulated. Install insulators such as heat blankets, heat tape, or frost boxes, as appropriate.
- Inspect all anti-freeze loop valves to ensure that they are in the open position. Chain and lock them in the open position if possible.



Cold Weather Programs for Buildings and Equipment

Lack of heat frequently causes building and equipment problems in severely cold weather. However, inadequate communication among personnel, inadequate procedures, and inadequate design and maintenance directly contribute to cold weather damage.

Recommendations:

- Ensure that operations/maintenance personnel communicate relevant cold weather information regarding status of equipment, heating, ventilation, etc. Communicating such



information is imperative during shift turnovers when extremely cold weather is anticipated.

- Include specific checks for adequate cold weather protection in written equipment maintenance procedures. Follow any special manufacturer-recommended procedures related to seasonal changes (for example, using oil of different viscosity).
- Evaluate equipment design problems that are exacerbated by cold weather. Replace, repair, or redesign equipment and systems as appropriate.